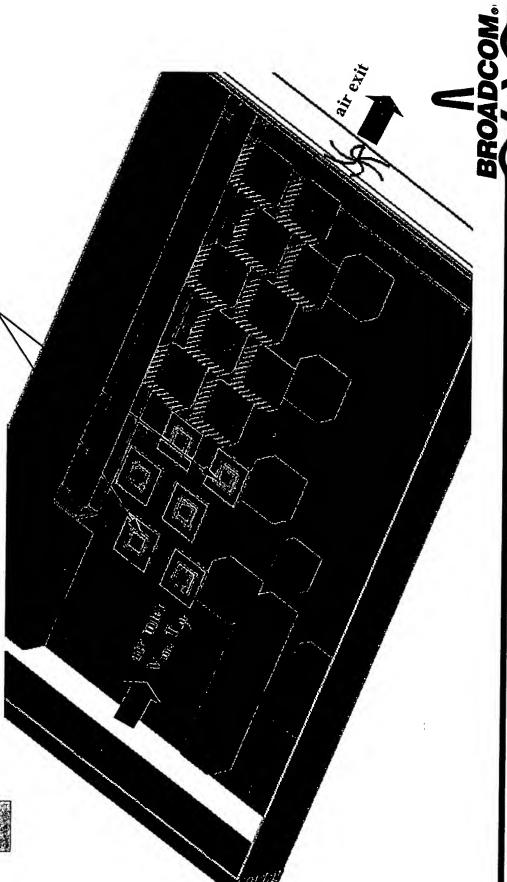
• Purpose: taking advantage of low galances of TBGA package of Method: removing heat sinks for upstream TBGAs • Purpose: taking advantage of 1600





### IC Package Thermal Data

- Theta-ja value provide comparison between packages
- theta-jb and theta-jc values represent package internal thermal resistances

# ICPackage Thermal Enhancement Design

- Minimization of theta-jb and theta-jc

# JEDEC standards for Package Thermal Characterization

- -still air and moving tests
- printed circuit boards for package thermal tests
- theta-ib measurement value depends on test board, thermal couple location, and board copper trace routing

## Thermal Modeling of Packages

- CFD based simulations account for all heat transfer modes
- -Heat conduction based simulations assume heat transfer rates on package and test board surfaces
- Modeling methods for IC package junction-to-board and junction-to-case thermal resistances

